

What is claimed is:

1. An electric switching device comprising:

an insulating substrate;

a first area formed on the insulating substrate; and

5 a second area formed on the insulating substrate such as to be a predetermined distance apart from the first area,

wherein the first and second areas contract or expand depending on the intensity of a laser.

10 2. The electric switching device of claim 1, wherein the first and second areas are formed of a chalcogenide-family material.

3. The electric switching device of claim 2, wherein the first and second areas are formed of Ge-Sb-Te.

15 4. The electric switching device of claim 1, wherein the predetermined distance between the first and second areas is wide enough for the first and second areas to contact with each other when expanding.

20 5. The electric switching device of claim 4, wherein the first and second areas enter into an amorphous state and expand to contact with each other when a 740nm-wavelength laser with 12mW intensity is applied to the first and second areas, and enter into a polycrystalline state and contract to be separated from each other when a 740nm-wavelength laser with 6mW intensity is applied to the first and

25 second areas.

30 6. The electric switching device of claim 1, wherein a conductive pattern is installed between the insulating substrate and each of the first and second areas, the conductive patterns are apart from each other by a distance smaller than the distance between the first and second areas, and when the first and second areas expand by a received laser, the conductive patterns come into contact with each other.

7. The electric switching device of claim 6, wherein the conductive patterns are formed of aluminum or gold.

8. The electric switching device of claim 1, wherein a groove is formed in
5 a portion of the insulating substrate that is below predetermined portions of the first and second areas so that the first and second areas can expand or contract freely.

9. An electric circuit device comprising:

10 an insulating substrate on which a plurality of switching transistors including chalcogenide source and drain areas that are a predetermined distance apart from each other are arranged; and

a laser radiating means installed above the insulating substrate, selectively applying a laser to the switching transistors.

15 10. The electric circuit device of claim 8, wherein a programmable photomask is used as the laser radiating means and comprises:

a lower substrate including a plurality of unit cells, in each of which a thin film transistor and a pixel electrode are formed;

20 an upper substrate opposite to the lower substrate and including common electrodes that form electric fields together with the pixel electrodes;

a liquid crystal layer formed between the upper and lower substrates;

a polarization plate attached to an outer surface of each of the upper and lower substrates; and

25 a laser source installed above the upper substrate,

wherein the programmable photomask transmits or blocks a laser from the laser source according to an operation of the liquid crystal layer when an electric field is formed between each of the pixel electrodes and each of the common electrodes.

30 11. The electric circuit device of claim 10, wherein the unit cells of the programmable photomask are located directly over the switching transistors.

12. The electric circuit device of claim 9, wherein laser diodes are used as the laser radiating means and arranged at regular intervals over the insulating substrate so that one switching transistor is located above one laser diode.